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LONDON, January 15, 1748.

PROPOSALS

For PRINTING, by SUBSCRIPTION,

Commercium Philoſophico-Technicum:

OR

The Philoſophical Commerce *of* ARTS.

Deſigned as an Attempt to advance

USEFUL KNOWLEDGE.

Fiat Experimentum. VERULAM.

By *W. LEWIS*, M. B.
FELLOW of the ROYAL SOCIETY.

CONDITIONS.

THIS Work will be printed on the ſame Paper and Letter with theſe Propoſals; and illuſtrated with Copper Plates, engraved by the beſt Hands. A few Copies will be printed on Royal Paper.

One Volume, containing Ninety Sheets of Letter-Preſs, beſides Copper-Plates, will be publiſhed every Year, in Six Numbers, at equal Diſtances of Time. The firſt Number will be publiſhed in May next.

The Price to Subſcribers is One Guinea; Three Shillings and Six-pence of which are to be paid on the Delivery of each Number.

Such Gentlemen as pleaſe, for the farther Encouragement of this expenſive Undertaking, to advance the Subſcription-Money, ſhall have printed Receipts delivered to them, ſigned by the Author.

A Liſt of the Names of the Subſcribers ſhall be prefixed to the firſt Number.

If any more Copies are printed than ſubſcribed for, they ſhall not be ſold under an advanced Price.

The Subſcription will be cloſed on the 25th of March next, and the Work immediately put to the Preſs.

Subſcriptions are taken in by the Author,

As alſo for his Uſe,
By *Robert Willock*, Bookſeller, in Cornhill.

BRITISH MUSEUM

THE

Philoſophical Commerce *of* ARTS.

THE title which we have choſe to prefix to our future work, promiſes no leſs than to lay the foundation of a philoſophical and experimental hiſtory of arts. The uſefulneſs of a work of this kind, if executed with a competent degree of ſkill, and a moſt ſcrupulous fidelity in relating the facts, muſt needs be evident to every ſenſible perſon. How far we ſhall ſucceed in this attempt, muſt be left to time and the judgment of the public: at preſent, we can do no more than lay down our general ſcheme, give an account of the ſtock of materials we have already prepared for this purpoſe, and offer the conditions on which we propoſe to engage in this laborious undertaking.

An experimental hiſtory of the capital ingredients and materials hitherto employed in arts, with an exact deſcription of ſuch as are leſs known, is an eſſential part of our work, and we hope will prove no leſs entertaining than uſeful: this we ſhall endeavour to improve by ſeveral new experiments, from whence the goodneſs, qualities and properties of many ſubſtances may be determined, and conſequently new uſes found out. Nor ſhall our hiſtory end here; but be extended to an examination of ſundry materials which have not as yet been introduced into arts or trades, and of certain refuſe matters which are commonly thrown away as uſeleſs: From the firſt, we ſhall ſometimes be enabled to ſubſtitute, for ſcarce and dear ingredients, ſuch as are cheap and eaſily procurable; for thoſe of foreign growth, the produce of our own country: and probably to afford ſomewhat more than hints for new trades and buſineſſes. The inquiry into refuſe matters, we have great reaſon to think from our own experience, will be of conſiderable advantage to particular trades: the importance of this ſuggeſtion is well known to ſuch as are concerned in mineral works, but not ſo well in ſome other arts as it deſerves to be: this, we hope, will engage ſeveral of our readers, particularly thoſe converſant in the dying buſineſs, to look narrowly into this affair, leſt they unwarily throw away what by a little management might be converted into an article of great uſe to other trades, and conſequently turn out of value to themſelves; and herein we ſhall not be wanting to give whatever aſſiſtance is in our power.

The capital diſcoveries hitherto made in arts ſhall be occaſionally collected and inſerted, and an account given of the leſs known practices of artiſts, as far as we are able to find them out. We ſhall likewiſe inquire into the cauſe of the defects in certain eſtabliſhed trades; and into the real merit and practicability of ſeveral proceſſes, hints, and experiments, recommended in books for the improvement of particular arts or ſupplying ſome of their deficiences, bring them to the teſt of a fair trial, and give a clear and faithful account of the event: this will neceſſarily point out ſome new experiments, and we hope will induce ſuch gentlemen as think proper to encourage this work, to communicate any matters or hints which may occur to them on peruſing theſe papers.

The more curious practices and operations, in uſe in certain arts and trades, demand a ſtill farther notice: theſe therefore ſhall be occaſionally brought under a ſtrict examination, in a view to the finding out ſome means of facilitating ſuch as are difficult, expediting or abridging the tedious, and upon the whole of ſparing as much as poſſible the labour of the operator; particular care being all along taken, that ſuch alterations as are introduced with this view, may not only not

injure

injure the products, but tend rather to render them more beautiful, durable, and better fitted for the uſes of life.

An experimental hiſtory of the capital commodities peculiar to foreign countries, becomes a neceſſary part of this undertaking, as it will furniſh us with ſome means of making or imitating them at home: we ſhall therefore give an account of ſeveral experiments made by ourſelves and others for this purpoſe, pointing out where the products of our trials exceed, equal, or fall ſhort of thoſe whoſe places they are intended to ſupply. Herein, we earneſtly deſire the aſſiſtance of ſuch gentlemen as have any competent knowledge of theſe matters; promiſing, for ourſelves, diligently to examine and apply ſuch informations as we receive, to the public utility.

We ſhall inquire likewiſe, by the way of experiment, into the arts ſaid to have been known by the ancients, and now loſt; particularly thoſe which relate to colours, in the preparing and managing of which, they were undoubtedly excellent, witneſs ſeveral colours which ſtill remain perfect and in great beauty, in ſome paintings. But herein we ſhall be particularly careful not to impoſe upon ourſelves or others, by purſuing illuſions, as the making of malleable glaſs, *&c.* but to ſelect ſuch things as ſeem actually practicable, and have a real foundation in nature.

In an undertaking of this kind, it may be expected that we ſhould examine ſuch proceſſes of what is called the ſublimer chemiſtry, as ſtand recommended by writers of any conſiderable degree of repute. Some of theſe therefore we ſhall attempt, but not without the utmoſt care and precaution; and candidly communicate the reſult of our inquiries, whether ſucceſsful or not. This we interweave with our ſcheme, rather as a means to prevent others from being miſled, than from any hopes of that ſucceſs which the authors promiſe. And herein we intend to expoſe, and give an experimental account of, all the illuſive practices which we are able to trace out, that have been made uſe of by the pretended adepts to lead the unwary into deſtructive ſchemes.

To execute this work with the greateſt perſpicuity and accuracy poſſible, we ſhall all along explain ſuch terms of art as may be neceſſary; and make uſe of only one ſort of weight and meaſure throughout the whole undertaking. The reduction of the different weights and meaſures employed by original authors, whether of our own or other nations, to one ſtandard, is a work of extreme difficulty; to reduce thoſe mentioned in compilations, by any general rules, abſolutely impracticable: nevertheleſs, the proviſion we have already made for the firſt, by means of tables, *&c.* puts us out of pain with regard to the execution; as to the latter, an experiment or two will clear up any point in doubt.

In giving our experiments, we ſhall communicate the whole, without reſerve; and deliver them in ſuch a manner, as, it is hoped, any perſon, with a ſmall degree of addreſs, may be capable of following. Nevertheleſs, if any of the proceſſes ſhould in other hands turn out otherwiſe than with us, or if any difficulties or inconveniences ſhould ariſe in the performance of them; we ſhall be always ready, upon proper information, to examine into the cauſe of the former, and endeavour to remove the latter.

Moſt of our proceſſes will be performed by means of a ſmall, commodious, and eaſily manageable apparatus, procurable at a moderate expence, the charge increaſing in proportion to its magnitude and conveniences; the uſe of which requires no extraordinary chimneys, *&c.* An accurate geometrical draught of the ſtructure of each part thereof ſhall be inſerted in our firſt numbers, with perſpective views of the inſtruments as employed in various operations.

That we may be enabled to enrich our papers with an early account of the diſcoveries made, the experiments going on, *&c.* abroad, we have already laid out for a proper cor-

reſpondence

reſpondence in foreign countries: the more curious of theſe experiments we ſhall try ourſelves, and make ſuch variations as may beſt ſuit our deſign: ſome new hints which may hence ariſe will be farther purſued.

We ſhall likewiſe, with great pleaſure, try ſuch experiments, or proſecute ſuch hints, as may be furniſhed us by our ſubſcribers (provided they do not require any great expence, or length of time) and give a faithful account of the reſult in ſome of our ſubſequent papers. This propoſal, it is preſumed, will prove highly acceptable to many, particularly ſuch gentlemen as are themſelves properly qualified for philoſophical reſearches, and making experiments, but have not leiſure or convenience to put their deſires in execution.

Some proceſſes ſhall not only be performed in the ſmaller way of trial or experiment, but likewiſe in the larger way of trade; and an account given of the different ſucceſs of each; in order to determine what uſe and advantage may be expected from them in real buſineſs.

To the more curious proceſſes we propoſe (where it can be done with certainty) to ſubjoin, in a ſhort and ſummary manner, ſo much theory as may give a ſatisfactory reaſon for the effect obſerved, or ſhew what may probably be the reſult of a variation of the proceſs; ſtudiouſly avoiding all hypothetical reaſoning, and advancing nothing but what naturally flows from ſuch properties of bodies as have been diſcovered by actual experiment, and are conſtantly and uniformly found to obtain.

We purpoſe to reduce into the form of tables ſuch of the properties of bodies, their relations with, and effects upon one another, in certain circumſtances, as have been hitherto diſcovered; and thus to lay before the reader, in one view, the reſult of a great number of experiments and obſervations, ſcattered up and down in the writings of practical authors: by this means, he will be enabled to account for various phænomena, in a ſolid and experimental manner;

manner; to judge beforehand of the event of many experiments; and to ſet about ſeveral operations more readily than can be done without an aſſiſtance of this kind. Particular care ſhall be taken, in the forming of theſe tables, not to rely entirely upon any authority whatſoever; but where we have not a competent number of facts ourſelves, to admit only ſuch as ſeem, from the nature of things, to be well founded.

The nature and deſign of this work will not admit of its being publiſhed in any other method than the miſcellaneous: we ſhall therefore ſubjoin to each volume a copious and accurate index; wherein the various articles which compoſe the ſeveral numbers will be reduced under general heads, ſo as to ſupply the want of a regular method in the work itſelf.

Throughout our whole undertaking, particular care ſhall be had, that the facts and obſervations which we offer the public, be in general important and intereſting: nevertheleſs we ſhall intermingle ſeveral which may perhaps be deemed merely curious and entertaining; though even theſe, if cloſely inſpected, will be found to have their uſe: for the diviſion of knowledge into curious and uſeful, does not ſeem at all juſt or adequate: the uſeful, viewed in a proper light, has always ſomething curious in it; and the curious, well purſued, ſeldom fails of affording ſomething uſeful. Trivial things, or thoſe commonly known, will have no place: nor ſhall we heap together a number of proceſſes to anſwer one ſingle intention. Such facts as we take from others ſhall be examined with the utmoſt care; and every thing which appears to us doubtful, reduced to the teſt of experiment; for we ſhall look upon ourſelves accountable for whatever we mention as matter of fact.

By theſe means, we apprehend, arts and trades will be conſiderably improved, ſome of their principal deſiderata ſupplied, their inconveniences remedied, ſeveral of their products rendered cheaper, many valuable ſecrets diſcovered, ancient arts revived, new ones ſtarted, and uſeful knowledge in general advanced.

MATERIALS

Which are intended

To make Part of this WORK.

AN experimental hiſtory of the art of dying.

An account of the various methods of preparing cloth, *&c.* to receive different dyes.

Inquiry into the real uſe of certain ſalts, and other matters (called non-dying drugs) in the buſineſs of dying.

A particular inquiry into the uſe of tin in dying.

The beſt method of diſſolving tin for dying ſcarlet.

The art of dying ſcarlet.

The art of dying all ſorts of reds, blues, and yellows.

The art of dying compound colours.

A method of dying purple without cochineal, or the uſe of a previous blue.

Inquiry into the purple dye of the ancients; with an account of ſome attempts made to revive it.

Attempts to dye ſeveral colours without heat.

Methods of dying different colours in the ſame piece of cloth; or of giving it a variegated appearance.

An experimental account of the method of making marble-paper, with ſome attempts to apply the proceſs to cloth, *&c.*

The art of dying ſilk, cotton, *&c.* of all ſorts of colours.

Experiments to determine the increaſe of weight which ſilk, *&c.* acquire in dying.

Experiments relating to the fixing of dyes, by certain managements of the ſubject when taken out of the vat.

Experimental inquiry into the ſubſtances which afford a durable dye; and thoſe which give what is called a falſe one.

Attempts to obtain from braſil, other woods, &c. a durable dye.

An account of ſome experiments made upon certain cheap ſubſtances, with a view to introduce them into the buſineſs of dying.

Experimental hiſtory of madder, kermes, coccus polonicus, cochineal, lac, and other ſubſtances uſed for dying red; with the beſt methods of preparing them.

Methods of ſtaining ivory and bones of beautiful and durable blue, green, and other colours.

Methods of giving common bone the appearance of ivory.

Methods of ſoftening ivory and bones.

The art of changing hair from any colour, to a beautiful and laſting black or brown.

Attempts to bleach hair, or to change hair of a diſagreeable colour into a fine ſilver one.

Methods of ſtaining the hairs of dogs, horſes, the feathers of fowls (without prejudicing the animals) of a variety of colours.

An experimental hiſtory of the colours employed by callico-printers.

An examination of ſome attempts to ſtain linen of a durable colour, by means of certain cauſtic oils.

A method of ſtaining linen of a beautiful and durable purple.

Some attempts to ſupply the deſiderata in the buſineſs of printing and ſtaining linen.

Experiments of ſtaining marble of a red, green, purple, and various other colours.

Methods to ſtain marble of a fine and laſting blue.

Methods to colour and variegate ſeveral of the harder kinds of ſtones.

An experimental examination of the art of painting on marble, &c. with ſome attempts to prepare and apply the tinging materials, ſo as to prevent the colour from ſpreading.

Experimental inquiry into the methods of heightening the colour of natural ſtones; and of recovering it, when loſt or faded.

Method of making a gold coloured varniſh or lacker.

Method of making a tranſparent colourleſs varniſh.

Attempts to make a tranſparent blue varniſh.

Method of totally diſſolving amber.

Experiments to improve printers ink.

Method of making writing ink in the utmoſt perfection.

Beſt methods of making red, &c. inks.

Examination of a method of preparing, without gold, a liquor for writing of a fine golden colour.

Ways of recovering the colour of decayed inks.

An experimental inquiry into the preparation and effects of a great variety of liquors, called ſympathetical inks.

An experimental hiſtory of the art of preparing various kinds of pigments, for painters, &c.

An account of the beſt method of making lakes from vegetables.

A method of ſeparating the tinging parts from gum lac, &c.

Inquiry into the method of making indigo abroad; with ſome attempts to apply the proceſs to other vegetables, ſo as to obtain fæculæ of different colours.

An extemporaneous method of judging what colour any vegetable is capable of affording.

An experimental examination of the common methods of making carmine.

Examination of the proceſs for making ultramarine.

Attempts to apply the above proceſs to the extracting of colours from other ſtones.

Experimental examination of the capital proceſſes hitherto employed for the preparation of Pruſſian blue; the defects of this pigment pointed out, with a method of remedying them, and of facilitating the preparation.

A method of making the magiſtery of biſmuth in the utmoſt perfection.

Method of obtaining a fine pearl-coloured powder from biſmuth by ſublimation.

Attempts to make fine coloured vermilion, without ſublimation, in the way of buſineſs.

Methods of diſcharging ſtains, ſpots of ink, *&c.* from cloaths, *&c.*

Methods of diſcharging dyes.

Some attempts to diſcharge all manner of colours from cloth.

Experimental hiſtory of fermentation.

Examination of the uſual proceſs for malting barley; with ſome practical rules for conducting it to the beſt advantage.

Attempts to apply this, or a ſimilar proceſs, to all ſorts of grain, certain roots, and other vegetable matters.

Inquiry into the common methods of brewing malt-liquors; ſome of their defects and inconveniences pointed out, with attempts to remedy them.

Methods of determining the ſtrength of worts.

An experimental inquiry into the buſineſs of ferments: with the methods of curing and preſerving them; and experiments to determine their choice, quantity, *&c.* for particular purpoſes.

Inquiry into the uſe of certain additions in the buſineſs of fermentation.

Examination of the common methods of expediting fermentation; with ſome attempts to improve them.

A method of brewing table-beer in the utmoſt perfection.

Experiments to improve the proceſs for making cyder, ſo as to imitate foreign wines.

Beſt method of making wine from certain fruits, the growth of this kingdom.

The art of conducting vinous fermentation, ſo as to preſerve the natural flavour of the muſt.

An attempt to imitate the flavour of frontiniac.

An attempt to imitate the flavour of raſpberries in perfection.

Attempts to imitate the flavour of muſcadine, *&c.*

Methods of preventing and curing certain diſeaſes of wines.

An experimental hiſtory of the methods of making vinegar at home and abroad.

Methods of expediting the proceſs of acetous fermentation; or improving the art of making vinegars.

Attempts to procure good vinegar from certain refuſe matters.

Inquiry into certain methods of making vinegar without fermentation.

An inquiry into the practicability of diſcharging the colour of vinegar.

Methods of determining the ſtrength of vinegar.

Methods of diſtilling vinous ſpirits from malt-liquors; and of rectifying them for particular purpoſes.

An examination of ſome methods propoſed for preventing an empyreuma in the diſtillation of malt-ſpirits.

Experimental inquiry into the methods propoſed by ſome practical authors for obtaining a perfectly flavourleſs ſpirit at one operation.

An account of ſeveral methods for diſcovering the ſtrength of ſpirits; with a deſcription and examination of ſome inſtruments for this purpoſe.

Inquiry into certain methods of giving a true and laſting vinoſity to vulgar rectified ſpirits.

Several experiments of imitating foreign brandies, rums, arracks, *&c.*

The art of making cordial waters.

The art of diſtilling ſimple waters in the utmoſt perfection.

The art of diſtilling oils in the utmoſt perfection.

Inquiry into ſome methods propoſed for obtaining a larger yield than uſual.

Examination of ſome methods of obtaining certain eſſential oils without diſtillation.

Account of the abuſes practiſed on theſe oils, with ſome curious methods of diſcovering them.

Beſt method of ſecuring eſſential oils from the injuries of time, and of rectifying them when injured.

An experimental inquiry into the phyſical cauſe of their alteration on keeping.

An inquiry into the beſt methods of obtaining, purifying, and preſerving expreſſed oils.

Examination of the more curious foreign ſoaps, with ſome attempts to imitate them.

Method of making a fine hard ſoap.

An experimental inquiry into the practicability and uſefulneſs of making ſoap without fire.

The method of making liquid ſoap.

The beſt method of eſtimating the goodneſs of ſoap.

The art of purifying ſoap, ſo as to fit it for the nicer uſes.

An account of the loſs and alteration which ſoap undergoes in keeping.

A method of obtaining a curious oil from ſoap, with its uſe.

A compendious way of uniting diſtilled oils with fixed ſalts, or making medicated ſoaps.

The art of making and purifying fixed ſalts.

Experimental hiſtory of the method of making potaſhes, both at home and abroad.

Attempts to improve the buſineſs of making potaſhes.

An inquiry into the identity of fixed ſalts.

Attempts to convert different ſalts into one another.

Experimental inquiry into the production of nitre.

Experimental hiſtory of making ſal ammoniac in the Levant; with ſome attempts to make it here to advantage.

Inquiry into ſome attempts for imitating borax.

Attempts to improve the buſineſs of cryſtallization, particularly with regard to borax and common ſalt.

Experimental hiſtory of ſugars, with the art of refining, cryſtallizing, &c.

Methods of curing and preſerving vegetable juices in the utmoſt perfection.

Beſt method of preſerving ſpecimens of plants.

An experienced method of preſerving the buckets of water wheels, &c. from decay for a great length of time.

Attempts to preſerve wood expoſed to the weather.

Inquiry into certain methods of preparing timber, ſo as not readily to take fire.

Methods of whitening wax.

Several attempts to preſerve fleſh ſweet for long voyages, without the inconveniences uſually complained of.

A method of preſerving eggs for a great length of time.

Method of preſerving inſects, *&c.* in a particular kind of varniſh, reſembling amber.

Experimental inquiry into the method of preparing and preſerving animals, or the parts of animals, for anatomical purpoſes.

Inquiry into the beſt methods of preparing anatomical injections; with ſome attempts to improve them.

Methods of curing and preparing animal fats, for the nicer purpoſes.

Experiments relating to the concentration of wines, vinegars, and other liquors, by cold.

Inquiry into the methods of concentrating liquors by means of certain ſalts and vitriols.

The art of concentrating certain liquors by means of heat.

Experiments relating to filtration.

Various methods of making cements for particular purpoſes.

Various methods of taking off impreſſions from ſeals, *&c.*

The method of caſting images in plaſter.

Method of giving figures made in plaſter a variety of beautiful and durable colours.

Attempts to render figures of plaſter capable of bearing the weather.

An inquiry into the method of making porcelane in China; with ſome attempts to imitate it here.

Method of converting glaſs into a kind of porcelane; with attempts to apply the proceſs to valuable purpoſes.

Experiments in the art of painting on earthen ware.

Experimental inquiry into the various methods of glazing earthen ware.

Attempts to render glaſs tougher than ordinary.

Attempts to make a harder glaſs than ordinary.

Experiments of hardening and colouring glaſs, ſo as to imitate natural ſtones.

Experiments in the art of painting on glaſs.

Experimental inquiry into the ancient method of tinging glaſs of a purple colour.

Methods of foiling plate, ſpherical, and other ſorts of figured glaſſes.

Various experiments in the art of gilding, ſilvering, *&c.*

Method of gilding live fiſhes.

Method of heightening the colour of gold.

Inquiry into ſome attempts to extract, by means of a menſtruum, the colour of gold, its ſubſtance remaining untouched.

Experimental examination of ſeveral methods propoſed for purifying gold.

Examination of the method of ſeparating gold from ſilver, by means of ſulphur.

Attempts to perfectly ſeparate ſilver from gold by ſimple fuſion.

An experimental examination of ſeveral methods propoſed for purifying and for tinging of ſilver.

Inquiry into ſome methods of expediting the proceſs of cupellation.

Experimental inquiry into the buſineſs of aſſaying metals and ores.

Experimental inquiry into the buſineſs of fluxes.

Examination of the common methods of ſmelting iron ore; with an inquiry into the real uſe of certain additions employed for this purpoſe.

Attempts to increaſe the malleability of iron, both cold and hot.

Obſervations on the texture of different kinds of iron and ſteel; with the marks that diſtinguiſh the one from the other.

Experiments to ſhew the cauſe to which coldſhire and redſhire iron owe their different qualities.

Practical obſervations on the different ſorts of caſt iron.

Method of ſoftening caſt iron.

Method of caſe-hardening iron.

Examination of certain receipts for preſerving iron from ruſt.

Attempts to tinge iron blue, in imitation of the Turkiſh ſcymeters.

Inquiry into the common methods of converting forged iron into ſteel.

Methods of judging of the good or ill qualities of ſteel.

Experimental inquiry into the methods of hardening and tempering ſteel for different purpoſes.

Method of melting ſteel, ſo as to preſerve all its good qualities.

Method of giving ſteel an uncommon degree of hardneſs and toughneſs.

An experimental inquiry into the method of obtaining pure copper from its ore, with a view to the ſhortening of the proceſs.

Method of reducing copper to an uncommon degree of purity and perfection.

Various methods of rendering copper of a gold colour.

Methods of tinging copper white, with ſome attempts to preſerve its malleability.

Attempts to imitate the red copper of Japan.

Method of making a curious amalgama of copper.

Some attempts to make vitriol of copper and verdigreaſe, ſo as to anſwer the purpoſes of trade.

Experimental hiſtory of making braſs.

Experiments to make a finer braſs than ordinary.

Inquiry into a method of tinging braſs of a ſilver colour.

Experimental examination of the common methods of obtaining tin from its ore.

Moſt commodious method of recovering tin from its aſhes.

Various methods of judging of the purity of tin.

Some experiments to ſhew the beſt methods of diſſolving tin for particular purpoſes.

Inquiry into the different proceſſes recommended for making ſalt of tin.

Some attempts to make a finer pewter than ordinary.

Experimental examination of the methods of obtaining lead from its ore.

Attempts to procure a veſſel capable of holding glaſs of lead in fuſion.

An experimental hiſtory of the making of white lead.

An account of ſome attempts to improve the proceſs.

Account of the making of red lead; and of the inconveniences attending this proceſs, with ſome attempts to remedy them.

Examination of a proceſs, by which mercury is ſaid to be obtained from lead.

Method of examining the purity of quickſilver.

Attempts to purify it without diſtillation.

Experimental inquiry into certain proceſſes recommended for animating mercury.

Inquiry into certain methods of fixing mercury, and giving it the form of a perfect metal.

Examination of certain proceſſes, by which mercury is ſaid to be converted into an aqueous liquor.

Examination of a proceſs, by which mercury is ſaid to be obtained from regulus of antimony.

A method of obtaining from antimony a larger yield of regulus than uſual.

Method of purifying regulus of antimony in the utmoſt degree of perfection; with an experimental inquiry into certain proceſſes for rendering it malleable.

Method of uniting regulus of antimony with mercury.

Method of amalgamating zinc with mercury.

An experimental inquiry into the phyſical uſes of zinc in certain compoſitions.

Examination of a method propoſed for imitating biſmuth.

Experimental examination of certain metallic mixtures which flow in a ſmall degree of heat, in order to aſcertain the buſineſs of making ſolders.

Examination of ſeveral compoſitions for making metallic ſpecula.

Inquiry into certain proceſſes for making a white metal reſembling ſilver.

Inquiry into a proceſs recommended for making a metal reſembling gold upon all trials except the cupel.

Account of certain ſubſtances which tranſude through metallic veſſels.

Method of rendering all the metals ſoluble in water.

Methods of rendering metals ſoluble in ſpirit of wine.

Methods of diſſolving metals in oils.

Method of diſſolving moſt metals in alcaline liquors.

An experimental examination of certain liquors called alcaheſts; with an account of ſome powerful menſtruums not commonly known, and their effects on metals, *&c.*

Examination of the vapours which ariſe during the diſſolution of metals in the aquæ fortes.

Method of ſuppreſſing the vapours which ariſe during the diſſolution of metals in the aquæ fortes.

An inquiry into the beſt methods of diſtilling aqua fortis.

An experimental examination of the refuſe matter left in the making of aqua fortis; with a view to apply it to uſeful purpoſes.

An attempt to make aqua fortis without diſtillation, for certain purpoſes.

A practical method of examining the degree of purity and ſtrength of aqua fortis.

Method of recovering aqua fortis, after it has been uſed in the operation of parting.

Attempts to obtain from ſulphur an acid ſpirit at an eaſy rate, in ſufficient quantity to anſwer the demand for oil of vitriol.

An experimental inquiry into a method for obtaining a perpetually ſmoaking ſpirit from common ſalt, by means of quicklime.

Experiments of the artificial production of great degrees of heat and cold, of fire and flame, from a mixture of cold liquors.

Examination of an experiment of ſupporting one flame in the midſt of another.

An experimental hiſtory of the preparation and effects of all the various phoſphori hitherto diſcovered.

Attempts to prepare the phoſphorus glacialis, in an eaſy and expeditious manner.

An examination of the common method of making gunpowder.

Several attempts to aſcertain the proportions which the ingredients ought to bear to each other.

An account of ſome attempts made to improve the manual part of the proceſs.

Methods of determining the ſtrength of gunpowder.

Method of making pulvis fulminans and aurum fulminans: their effects compared with thoſe of gunpowder.

Compoſitions for fire-works.

An account of ſeveral pictureſque appearances (called artificial vegetations) in plano.

Extraordinary effloreſcence of a particular kind of ſalt.

Arbor Dianæ, Arbor Martis, Hoffman's arbor corallina.

An account of ſeveral fluids which coagulate upon mixture.

Table of the quantity of certain ſalts ſoluble in a given quantity of water, with an experimental account of the uſes thereof.

Table of the quantity of water which ſalts retain in cryſtallization; with an experimental account of the uſes thereof.

Table of the relation or affinity which different ſubſtances bear to one another; with an experimental account of its uſes.

Table of the ſpecific gravity of certain commodities, &c. uſed in arts; with an experimental account of its uſes.

Tables of the quantities of Oils, Salts, Spirits, which certain vegetables, &c. are found to yield, upon proper treatment.

Table of the proportions which the weights and meaſures of Germany, France, &c. bear to thoſe of England.

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